


INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference PC466GQ	FOR FURTHER ACTION		See Form PCT/PEA/416
International application No. PCT/EP 03/12337	International filing date (day/month/year) 05.11.2003	Priority date (day/month/year) 07.11.2002	
International Patent Classification (IPC) or national classification and IPC B60G21/05			
Applicant SISTEMI SOSPENSIONI S.P.A. ET AL			
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 6 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input type="checkbox"/> sent to the applicant and to the International Bureau a total of 7 sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>			
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>			
Date of submission of the demand 04.06.2004		Date of completion of this report 24.02.2005	
Name and mailing address of the International preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016		Authorized Officer Tsitsilonis, L Telephone No. +31 70 340-2879	



**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/EP 03/12337

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

Description, Pages

2, 3, 5-7 as originally filed
1, 1a, 4 received on 09.02.2005 with letter of 02.02.2005

Claims, Numbers

1-11 received on 09.02.2005 with letter of 02.02.2005

Drawings, Sheets

1/4-4/4 as originally filed

- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):

* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT
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International application No.
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Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-11
	No: Claims	
Inventive step (IS)	Yes: Claims	3,5,9-11
	No: Claims	1,2,4,5,7,8
Industrial applicability (IA)	Yes: Claims	1-11
	No: Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

7.
5.

**INTERNATIONAL PRELIMINARY
REPORT ON PATENTABILITY
(SEPARATE SHEET)**

International application No.

PCT/EP 03/12337

Reference is made to the following documents:

- D1: EP-A-0 743 205 (VALLOUREC VITRY) 20 November 1996 (1996-11-20)
- D2: US-A-4 486 030 (TAKATA NAOTO ET AL) 4 December 1984 (1984-12-04)
- D3: US-A-6 047 978 (MURATA SATOSHI ET AL) 11 April 2000 (2000-04-11)
- D4: US-A-4 432 564 (TRONVILLE PIER G) 21 February 1984 (1984-02-21)

1. Independent claim 1

The document D1 is regarded as being the closest prior art to the subject-matter of claim 1, and shows (see figures 1,3,4; the references in parentheses applying to this document): Twist-beam axle for the rear suspension of a motor vehicle, of the type comprising a central cross-member (3) and a pair of trailing arms fixed to respective side end portions (10,11) of the cross-member (3), wherein each trailing arm comprises a pair of front and rear transversely inner half-shells (14,15) fixed to the respective side end portion of the cross-member (3) and a transversely outer half-shell (17) securely connected to the transversely inner half-shells (14,15) so as to form therewith a rigid body having a closed cross section.

The subject-matter of claim 1 therefore differs from this known twist-beam axle arrangement in that the transversely inner half-shells are separate components from the cross member and are securely connected to each other and to the respective side end portions of the cross member.

The subject-matter of claim 1 is therefore novel (Article 33(2) PCT).

It is however generally known to the person skilled in the art that the feature of having the transversely inner half-shells as separate components from a cross member which can then be securely connected to each other and to the respective side end portions of the cross member, is an **equivalent** to the feature of having the transversely inner half-shells formed by the prolongations of the end portions (10,11) of the cross member (3), as disclosed in document D1, and therefore, It would be obvious to the person skilled in the art, to interchange these features, with the corresponding effect, where circumstances make it desirable.

For this reason, the subject matter of claim 1 of the present application is considered as **not** involving an inventive step (Article 33(3) PCT).

3. Dependent claims 2,4,5,7,8

Dependent claims 2,4,5,7,8 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step (Articles 33(2) and 33(3) PCT), the reasons being as follows:

- all technical features of claim 2 are disclosed in document D1, where each of the transversely inner half-shells (12,14;13,15) comprises a first limb which extends essentially transversely (see figure 1) and is securely connected to the respective end (10,11) of the cross member (3) and to the other transversely inner half-shell (13,15;12,14) of the same trailing arm, since the inner half-shells (12,13,14,15) are integral with the cross member (3), and a second limb, integral with the first limb, which extends essentially longitudinally and is securely connected to the transversely outer half-shell (16,17) of the arm (see figure 4);
- the subject matter of claim 4 cannot support an inventive step in view of either document D2 (see figures; column 3, lines 57-62) or D3 (see figure 6);
- regarding the subject matter of claim 5, document D2 discloses (see figure 1; column 4, lines 12-26) a very similar twist-beam axle to the one disclosed in document D1, where the half-shell is not made as an integral part of the cross beam and that the use of front and rear transversely inner half-shells is known. As a result, it would be obvious to the person skilled in the art to use welding as a means for joining the front and rear half-shells as well as the cross member with each other.
- all technical features of claim 7 are known from document D4 (see figures 3,4)
- the technical features of claim 8 are known from document D2 (see column 3, lines 61,62)

4. Dependent claims 3,6

The features of dependent claims 3 and 5, in combination with the features of any claim to which they refer, is neither known from, nor rendered obvious by, the available prior art, and as such meet the requirements of Article 33(3) PCT with respect to inventive

step.

Regarding the subject matter of claim 3, it differs from the subject matter of document D1, which in this case is considered to represent the best prior art, in that the transversely inner and transversely outer half-shells have at least over part of their length a substantially C-shaped cross section (similar to the transversely inner rear half-shell disclosed in document D2), where the upper and lower horizontal walls form respective joining edges, which edges are positioned facing two by two for connecting each half-shell with each other.

5. Independent claim 9 and dependent claims 10,11

The combination of the features of independent claim 9, is neither known from, nor rendered obvious by, the available prior art and as such meet the requirements of Article 33(2) PCT with respect to novelty, the reason being that the subject matter of claim 9 differs from the subject matter of document D1 in that a method of production of a twist-beam axle is claimed involving the steps of:

- providing a front and a rear transverse inner half-shells which are adopted to (i.e. constructed appropriately to) allow the connection (joining) of the inner half-shells to each other and to the cross member
- securely connecting the two pairs of inner half-shells onto the respective end portion of the cross member.

Claims 10,11 are dependent on claim 9 and as such also meet the requirements of the PCT with respect to novelty and inventive step (Article 33(2) and (3) PCT).